SC A1 ROTATING ELECTRICAL MACHINES

PS1: Generation Mix of the Future


A1-102 Investigations on ROCOF withstand capability on large synchronous generators
    K. CHAN - CH, J. OESTERHELD - CH, S. TEMTEM - CH, J. HALDE<span>MAN</span>N - CH

A1-103 Development, Test and Validation of new Generator Product Line for current and future operational regimes
    J.-H. BRAAM - DE

A1-104 Impact of grid code evolution on the design of the generators for nuclear plants (Half speed, power above 800 MVA)
    B. WAHDAME - FR

A1-105 Contribution of Kyogoku Power Station, an adjustable speed pumped storage, in actual grid operation

A1-106 Calculation of Rotor Eddy Current Losses in High-Speed PM Synchronous Generators using Transfer Matrices
    J.R. ANGLADA - GB, S.M. SHARKH - GB, M.A. YURATICH - GB

SC A1 ROTATING ELECTRICAL MACHINES

PS2: Asset Management of Electrical Machines

A1-201 Variability of PD readings and failure location in high voltage bars
    T. HILDINGER - BR

A1-202 A Study of the Propagation Behaviour of Partial Discharge Pulses in the High-Voltage Winding of Hydro Generators
    F. OETTL - AT, C. ENGELEN - AT, E. BINDER - AT, T. KESSLER - AT

A1-203 Partial Discharge Activity in Isolated Phase Bus (IPB) – Case Studies from UK Power Stations
    A. SINGH - GB, M. HUGHES-NARBOROUGH - GB

A1-204 Analysis of Insulation Diagnosis for Generator-Motor Stator Winding and Core in Pumped Storage Power Plants

A1-205 Novel fiber optics technology monitors in-slot vibration and hot spots in an air cooled gas generator
    P. KUNG - CA

A1-206 CANCELLED - Ability of Sweep Frequency Response Analysis (SFRA) to detect broken bars in squirrel cages of induction machines

A1-207 Importance of operating parameters when assessing the condition of machines on-line
    J. LETAL - CA

A1-208 Torsional Oscillations Mitigation for Interconnected Power System via Novel Fuzzy Control Based Braking Resistor Model
    M. FAYEZ AHMED - EG, M.A. EBRAHIM - EG, M.A. EL-HADIDY - EG, W.M. MANSOUR - EG

A1-209 Using an air gap monitoring system during initial commissioning stages of a hydro generator
    A. TÊTREAU<span>L</span> - CA
Application of Differential Magnetic Field Measurement (DMFM method) in winding fault detection of AC rotating machines as part of expert monitoring systems
A. ELEZ - HR

Generators as Synchronous Condensers to meet Dynamic System Requirement by Renewable Mix. – Indian Scenario
D.K. CHATURVEDI - IN, A.K. GUPTA - IN

SC A1 ROTATING ELECTRICAL MACHINES
PS3: Developments of Rotating Electrical Machines and Operational Experience

A Study of the failure and repair rate indicators of the Itaipu generator units
R. SILVA - BR

Forensic Analysis of Gas Turbine-generator Shaft Failures due to Possible Subsynchronous Resonance

Analyses of possible refurbishment of generators in HPP Perucica
R. BATAKOVIC - ME, B. DORDAN - ME

Operation experience of asynchronized turbo-generators in the Moscow power system
P. SOKUR - RU

Analysis on the effect of screen ventilation width on end flux distribution and eddy current losses of Turbo-generator
L. WANG - CN

Influence of total flow rate on complex fluid flow and temperature rise in the rotor region of large Hydrogenerators
J. HAN - CN

Loss Reduction by large-Scale Electromagnetic Analysis for Turbine Generators
H KOMETANI - JP

Reactive power capability of large hydro generators and the European Grid Code requirements with respect to voltage stability
L. ROUCO - ES, F. PERÁN - ES

Development of Large Indirectly Hydrogen-cooled Turbine Generator and Associated Technologies
S MURAMATSU - JP

Analysis of Winding Temperature Characteristic by Dual-frequency Method and Real-load Test for Induction Motors

SC A2 POWER TRANSFORMERS AND REACTORS
PS1: Thermal Characteristics of Power Transformers

Development of a dynamic thermal hydraulic network model for core-type power transformers windings

Experimental validation of a thermal hydraulic management platform for core-type power transformers
H. M. CAMPELO - PT, M. A. QUINTELA - PT, A. C. BARRADAS - PT, S. COUTO - PT, E. COSTA - PT

Improved THNM models for power transformers using new correlations set up with CFD simulations.
W. VAN DER VEKEN - BE

The role of direct hot-spot temperature measurements and dynamic thermal models in the determination of power transformers dynamic thermal rating
TIM GRADNIK - SI, A. POLAJNER - SI

Selecting the right level of complexity for thermal modelling of transformer windings
T LANERYD - SE
A2-106 Uneven liquid flow distribution in radial ducts in transformer winding cooling systems shown by CFD and experimental measurements

A2-107 Determination of local losses and temperatures in power transformer tank
R. SITAR - HR

A2-108 Determination of the temperature rise of the magnetic core of power transformer by 3D finite element method modelling
D. BORTOLOTTI - FR

A2-109 Comparison between different methods to measure winding hot-spots
M. MARTÍNEZ - ES, C. VILA - ES, M. CUESTO - ES, M. VAQUERO - ES, J.E. GRIJUELA - ES

A2-110 Experience with transformer loading tests and direct temperature measurements in laboratory and in service
C. RAJOTTE - CA

A2-111 Measurement of thermal behavior of an ester-filled power transformer at ultra-low temperatures
F. BACHINGER - AT, P. HAMBERGER - AT

A2-112 Practical aspects of determining the hotspot temperature in large power transformers
C.J.G. SPOORENBERG - NL

A2-113 Study on Winding Temperature Rise Using Full-Scale Large Power Transformer Model
S YAMADA - JP

A2-114 Design of Insulated Cables to Reduce Gassing Issues in Power Transformers
D. VIR - US, T.M. GOLNER - US

A2-115 Experiences with high-temperature insulation systems & overload requirements
C. PERRIER - FR

A2-116 Cold start-up and loading of oil immersed power transformers at extreme ambient temperatures

A2-117 Thermal comparison between mineral oil, natural and synthetic esters at largest single-phase 420 kV green transformer
M. CUESTO - ES, C. GONZÁLEZ-GARCÍA - ES, M. VAQUERO - ES, D. VUKOVIC - DE

SC A2 POWER TRANSFORMERS AND REACTORS

PS2: Advances in Diagnostics and Modelling

A2-201 Development of Power Transformer Defect Location Detection Technology using UHF Partial Discharge Monitoring System

A2-202 Experimental Investigation on Ungrounded Conductive Objects Effects Approximate to Power Transformer during IVPD Test
A.A. ABBASI - IR, F. GHELICHI - IR, A. TOFIGHI - IR, S. EMRANI SARAVI - IR, K. GHARANI KHAJEH - IR

A2-203 Experimental evaluation of the status of 400 kV shunt reactor bushings in the Swedish national grid
L JONSSON - SE

A2-204 First results from the field testing of advanced acoustic monitoring of variable shunt reactors and on-load tap-changers

A2-205 Localization of PD Sources in Transformers by Analysis of Signals in Time- and Frequency Domain
J. FUHR - CH, T. ASCHWANDEN - CH

A2-206 Machine Learning Tools in Support of Transformer Diagnostics
L. CHEIM - US

A2-207 Method of Investigations and Predictions for transformers faults
M. AL-NSOUR - JO
A2-208  A novel approach for bushing fault diagnosis: Power Grid India experience
SUMIT S HARICHANDANRAY - IN

A2-209  Application of natural frequencies deviations patterns and high-frequency white-box transformer models for FRA interpretation
V. LARIN - RU

A2-210  French utility investigations for simulating HF transients in power transformers
P. POUJADE - FR

A2-211  Interpretation of the LF resonance in Frequency Response Analysis of transformer windings
J. SUBOCZ - PL, M. SZROT - PL, J. PAWLUCHA - PL

A2-212  modelling of winding frequency Response of a Large Power Transformer, based on design data, and comparison to Measured Results
M. LOUWERSE - NL

A2-213  Modelling of transformers and reactors for electromagnetic transient studies
B. GUSTAVSEN - NO, A. PORTILLO - UY, H.K. HØIDALEN - NO

A2-214  A New Approach for High Frequency Modelling of Disc Windings

A2-215  Transformer Internal Resonant Over-voltages, Switching Surges and Special Tests
J.A. LAPWORTH - GB, P.N. JARMAN - GB, Z.D. WANG - GB, S. DRAGOSTINOV - BG

A2-216  CANCELLED - Transient modelling of Shunt Reactors for System Studies and Impact on Insulation Design

SC A2 POWER TRANSFORMERS AND REACTORS
PS3: Site Commissioning Tests

A2-301  Benefits of high voltage testing at site for power transformers
E. TENYENHUIS - CA

A2-302  The Emerging Role of FRA as a Required Commissioning Test
J. TUSEK - AU

A2-303  Particularities of the additional site commissioning tests applied to power transformers and shunt reactors for correct decision regarding their technical condition - a Romanian Experience
C. MOLDOVEANU - RO

A2-304  Recommendation of site commissioning tests for rapid recovery transformers with an installation time less than 30 hours

A2-305  The Study for Environmental Effect of Sound Measurement of Power Transformer

A2-306  A study on key technology and demonstration application of UHV AC site assembled transformers
X. WANG - CN

SC A3 TRANSMISSION & DISTRIBUTION EQUIPMENT
PS1: Requirements for AC and DC Transmission & Distribution Equipment

A3-101  Application of metal oxide surge arresters in parallel with circuit breaker's chambers as a possible solution to reduce TRV
J. AMON - BR

A3-102  High-voltage Circuit-Breaker Test Statistics 2011-2016 and test Analysis Tools
R. SMEETS - NL
A3-103 Optimizing the energizing scheme of ungrounded shunt capacitor banks
R. DOCHE - CA

A3-104 Control Methods for Fault Current Limiting Using Hybrid HVDC Breakers
D JOVCIC - GB, A JAMSHIDI FAR - GB, A. HASSANPOOR - CN

A3-105 Development of 500kV modular cascaded hybrid HVDC breaker for DC grid applications
G. TANG - CN

A3-106 Flexible measures to depress switching over-voltage in UHVAC transmission system and latest research results
X. CHEN - CN

UMESH SEN - IN

A3-108 Technical design requirements and test experiences on Composite Hollow Core Insulators regarding pollution performance under AC and DC stress

A3-109 Development of requirements for testing and verification of RTV-coated substation support insulators for AC application
A DERNFALK - SE

A3-110 Simulation and Measurement of Pressure Rise in GIS 145 kV due to Internal Arcing
D. GORENC - HR

A3-111 Development of a protection strategy for future DC networks based on lowspeed DC circuit breakers
A BERTINATO - FR

A3-112 Survey on Requirements for Induced Current Switching by Earthing Switches
S TSUKAO - JP

A3-113 Development and Research of Switching Capability of Gas-insulated Disconnecting Switch of Switchgear
A. ROTBLUT - RU

A3-114 Experience of application generator circuit breakers in TPP Kakanj
A. LUJNOVIC - BA

A3-115 Full Power Short-circuit Tests of HVDC Circuit Breakers using AC Generators Operated at Reduced Power Frequency

SC A3 TRANSMISSION & DISTRIBUTION EQUIPMENT

A3-201 Digital Disconnector: return on experience on digital substation
E. STELLA - IT, J.L. RAYON - FR, G. HENRY - FR

A3-202 The Egyptian experience in solving transient problems associated with the switching operations of 220kV capacitor banks
M. BASYOUNI - EG

A3-203 Experience on use of Controlled Switching Devices with Circuit Breakers in Indian Power System- A Case Study
JIVESH KHANNA - IN, R.K TYAGI - IN

A3-204 Safety in the operation of oil-paper instrument transformers
J.M. NOGUEIRAS - ES

A3-205 Disconnectors reliability on the French grid and means to reduce the consequences of their failures on the electrical system
G. HENRY - FR

A3-206 Application and Reliability of Metal Oxide Surge Arresters in Japan
H KAJINO - JP
SC A3 TRANSMISSION & DISTRIBUTION EQUIPMENT

PS3: Novel Developments of Transmission & Distribution Equipment

A3-301 Performance Evaluation of CO2/Fluoronitrile Mixture at High Short Circuit Current Level in GIS and Dead-Tank High-Voltage Circuit Breakers

A3-302 Vacuum Generator Circuit Breaker as a Reliable SF6 Alternative with Reduced Life Cycle Costs for Power Plants up to 400 MW

A3-303 Evolution of functional requirements for MV switchgear
A. JANSSEN - NL

A3-304 The future evolution of medium voltage circuit-breakers: new developments and possible applications
M. RIVA - IT, P. BERTOLOTTO - IT, M. BONACOSA - IT, L. CHENET - IT, F. VIANO - IT

A3-305 Physical Aspects of Arc Interruption in CO2/O2/Fluoroketones Gas Mixtures
J.D. MANTILLA - CH, M. CLAESSENS - CH

A3-306 Study on electrical endurance for capacitive current switching of 1100kV circuit breakers used for filter banks
B. CUI - CN

A3-307 Application of a Heptafluorobutyrilflouride gas (C4F7N) mixed with the Background gas of CO2 in GIS as SF6 Alternative

A3-308 Switching of long compensated cables. Transients and switching strategies applied in 132kV AC Mallorca-Ibiza submarine link

A3-309 Performance evaluation of CO2 and Fluoronitrile mixture in comparison with SF6
K. BOUSOLTANE - FR

A3-310 Extending metering technology limits with new approach to combined instrument transformers using IEC61850-9-2LE protocol
M. YANIN - RU, T. HEID - CH

A3-311 145/170 kV Vacuum Circuit Breakers and Clean-Air Instrument Transformers – Product performance and first installations in AIS substations

SC B1 INSULATED CABLES

PS1: Recent Experiences with Underground and Submarine AC and DC Cable Systems

B1-101 Dry-type branched joint for 72-kV extruded cable systems
J. ROSSUM, VAN - NL

B1-102 Challenges for the repair strategy of 380kV cable systems
J. SMIT - NL

B1-103 CANCELLED - 220kV underground cable Project in Melbourne - Thermo-mechanical design for transition between rigid and flexible cable Installations - a practical example

B1-104 Comparative Between Underground Lines Magnetic Field Shielding Techniques on the Field Reduction Factor, Line Ampacity and Implementation Costs
R. MOREIRA - BR
B1-105 Study of electromagnetic shielding of high voltage cables: a comparison between an experiment and FEM simulation
G. SUN - CH, C. D. BLASIIS - CH, P. CORSARO - CH

B1-106 Experience of withstand voltage testing by using variable frequency tuned resonant test system for extruded power cable in site
A. ELFARASKOURY - EG

B1-107 New High Voltage Underground Cables to Supply the Energy for the 2016 Olympic Games
C. PEIXOTO - BR

B1-108 A new microtunneling technology for extra-high-voltage power cable installations

B1-109 A case study for the use of semi-conductive outer sheath layers on 400 kV cable systems installed in a tunnel application
T.P. DU PLESSIS - ZA

B1-110 Sheath circulating currents calculation in asymmetrical installation schemes for power frequency models
K. ALEXANDROU - GR, C. TASTAVRIDIS - GR, G. GEORGALLIS - GR, G. J. ANDERS - PL

B1-111 CANCELLED - Factors affecting the load current and losses in the elements of the single-core underground power cables

B1-112 Conversion of a portion of a 220 kV Overhead Line to Underground in Cartagena - Colombia
J. LOPES - BR

B1-113 CANCELLED - Experience with installation of underground HVAC Cable circuits in Christchurch, New Zealand

B1-114 Analysis of Induced Sheath Voltages and Currents of 230 kV Oil-Filled and XLPE Underground Power Cables in The Tunnel: Case Study of Metropolitan Electricity Authority of Thailand
A. PHAYOMHOM - TH

B1-115 Safe Work on HV Extruded insulation Cable Systems under induced Voltages
M. CABAU - FR

B1-116 Lessons learnt during reparation of the Morocco-Spain submarine connection

B1-117 Commissioning of the Italy – Sicily 420 kV submarine link: field test results
F. PALONE - IT, V. IULIANI - IT, M. REBOLINI - IT, A. VALANT - IT, L. BUONO - IT, A: MAZZA - IT

B1-118 Ampacity calculation method for deeply buried wind farm AC submarine export cables
D. VREE - NL

B1-119 Removal of old oil filled submarine cables in the Oslo fjord 2016/2017
E. TOMMELSTAD - NO

B1-120 Energising the Martin Linge Offshore Oil and Gas Platform
A. TYRBERG - SE, A. PERSBERG - SE, O. LIND - SE, N.G. VAN LUIJK - NO, L. MYKLEBUST - NO, L. POPE - NO

B1-121 CANCELLED - EHV/HV submarine cable systems lifetime integration

B1-122 Development of HVDC XLPE cable system for VSC and LCC

B1-123 Evaluation of 320 kV extruded DC cable system for temporary overvoltages by testing with very long impulse waveform
T. KARMOKAR - SE

B1-124 Italy-France HVDC interconnection named “Piedmont-Savoy”: an example of synergy between electric energy transmission and highway infrastructures
R. DE ZAN - IT, R. BENATO - IT, S. DAMBONE SESSA - IT, M. PAZIENZA - IT, M. REBOLINI - IT
B1-125 The Johan Sverdrup project, Power from shore  
K. JOHANNESSON - SE

B1-126 Distributed Temperature Sensing on the NorNed HVDC Cable System  
Ø. GARVIK - NO

B1-127 Development and qualification of the extruded cable system for Xiamen ± 320 kV VSC-HVDC Project  
X. GU - CN

SC B1 INSULATED CABLES

PS2: Best Use of Existing Underground and Submarine AC and DC Cable Systems

B1-201 A development of on-line system for detecting partial discharge of underground extra high voltage XLPE cable  

B1-202 Investigation on the Incipient Self-clearing Faults in Distribution Cables by Power Quality Monitoring System and Online PD Detection  
C. HONGYAN - SG

B1-203 Belgian experience with the design and installation of online monitoring techniques on a 380 kV A.C. cable system  
P. LEEMANS - BE

B1-204 Fire performance upgrade of installed HV insulated cables through special on-site taping  

B1-205 Initiatives in prevention measures against SCOF cable faults and fires  
K. IWASAKI - JP

B1-206 Thermo-Electrical Equivalent of Submarine Export Cable System in Wind Farms – Model Development and Validation  
T. SARTO - DK

B1-207 New Approach to Third Party Damage Probability Assessment for Submarine Cables  
CHR. FREITAG - DE, A. FOSTER - GB, L. MACNAY - GB

B1-208 Feasibility evaluation of existing AC cable joints under DC operating conditions  
A. LEWARKAR - NL

SC B1 INSULATED CABLES

PS3: AC and DC Underground and Submarine Cable Systems in the Network of the Future

B1-301 On the possibility of using HTSC cable lines in creation of long-distance interconnections  
V.E. SYTNIKOV - RU, P. V. RYABIN - RU, S. YAMAGUCHI - RU, Y. IVANOV - RU

B1-302 22.9 kV Polypropylene Insulated Power Cable with Soft Polypropylene  

B1-303 World First Commercial Project for Superconducting Cable System in Korea  

B1-304 Design and tests of the first commercialized 500 kV XLPE insulated submarine power cable  
L. SUN - CN

B1-305 Innovative Fault Location and Repair of Submarine Power Cables on the Seabed  
P. O’ROURKE - IE

B1-306 Armour Loss in Three Core Submarine Cables – Measurements of Cable Impedance and Armour Wire Permeability  
R. STØLAN - NO

B1-307 Current and future applications of HPTE insulated cables Systems  
A. BAREGGI - IT, P. BOFFI - IT, S. CHINOSI - IT, S. FRANCHI BONONI - IT, L. GUIZZO - IT, G. LAVECCHIA - IT, M. MARZINOTTO - IT, G. MAZZANTI - IT, G. POZZATI - IT
**B1-308** Prequalification Test of Extruded HVDC 525-kV-Underground Cables

**B1-309** Fully qualified 640 kV underground extruded DC cable system
M. JEROENSE - SE

**B1-310** Electromagnetic Interference in Parallel HVDC Cable Circuits
R. STØLAND - NO

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**SC B2 OVERHEAD LINES**

**PS1: Overhead Lines and Information Technology**

**B2-101** Optical system for broadband data transmission concomitant to monitoring the physical integrity of conductors in overhead transmission lines
J. ROSOLEM - BR

**B2-102** Reliability Based Transmission Capacity Forecasting
J. MCCALL - US, R. BLISS - US, D. NADEAU - CA

**B2-103** Frequency of weak winds on a long transmission line fjord crossing
H. AGUSTSSON - NO

**B2-104** Potential analyses for dynamic rating optimization on basis of four years of operational experience in Austria
K. REICH - AT, G. MIKA - AT, R. PUFFER - DE

**B2-105** Quantifying the risk in dynamic thermal line rating
L. DAWSON - CA

**B2-106** Dimensioning of Electrical Clearance of OHL Using Correlation between Weather Condition and Lightning Strike Probability

**B2-107** Innovative techniques for the predictive maintenance of overhead power lines. Practical application in the improvement of efficiency in felling and pruning in Northern Spain

**B2-108** CANCELLED - Dynamic line rating using an approach for weather condition predictors

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**SC B2 OVERHEAD LINES**

**PS2: Experiences Leading to Improvements of OHL**

**B2-201** Test Results to Confirm Minimum Vegetation Clearance Distance (MVCD) Standards
A. PHILLIPS - US, C.S. ENGELBRECHT - NL

**B2-202** CANCELLED - Damping the Longest Transmission Span in the World

**B2-203** Modelling and verification of flowing air discharge in transmission lines wind environment
G. WU - CN

**B2-204** Comparative Study of the Long-term Reliability of HTLS Conductor Systems

**B2-205** CANCELLED - Shortcomings and proposed improvements to the current practice used by Eskom Transmission to determine asset health index of overhead transmission lines

**B2-206** The improvement of the performance of the overhead lines with the use of new technologies – The Chilean experience
S. ORTEGA - CL
B2-207 Global approach for mechanical reinforcement of OHL
T. RAULT - FR

B2-208 Recent Disaster Experiences and Countermeasure Technologies for Overhead Transmission Lines in Japan
M. MORI - JP

B2-209 Overheating of Grounding Wire Clamps of Transmission Lines - Diagnostics, EMTP Investigation and Solution Suggestion
L. MUSIL - CZ

B2-210 Optimum maintenance frequency determination of transmission towers degraded by salt pollution on the Peruvian coastline

B2-211 Protection of metal towers of overhead lines from corrosion: non-destructive diagnostic methods and recommendations for additional security
E. LYPUNOV - RU

B2-212 Estimation of Tensile Force in Conductor by Vibration and Strain Measurement in Pillar's Legs of Transmission Line

B2-213 Conception of very high towers for crossing the river Scheldt
J. MAESSCHALCK - BE

SC B2 OVERHEAD LINES
PS3: JOIN PS with C3 Technical and Environmental Aspects of OHL

B2-301 Copel's experience on uprating a 69 kV Compact Overhead Urban Transmission Line into 138 kV (Supercompact urban transmission line)
M. SOUZA - BR

B2-302 HVDC & hybrid HVAC/HVDC overhead line conversion: An acceptance case study
S. HEDTKE - CH, M. PFEIFFER - CH, C. M. FRANCK - CH, CLAU DERMONT - CH, I. STADELMANN - CH, J. JULLIER - CH

B2-303 Development of an innovative measurement system for audible noise monitoring of OHL

B2-304 Innovative towers to facilitate public acceptance
J.F. GOFFINET - BE

B2-305 380kV double circuit compact "Vitruvio" towers equipped with antitorisional insulating crossarms
P. BERARDI - IT, L. ALARIO - IT, M. GAMBASSI - IT, S. MEMEO - IT, A. PICCININ - IT, M. REBOLINI - IT, O. COLOMBO - IT, G. VERRILLO - IT

B2-306 Passive loops: effects on distance protections and lightning performances of EHV overhead lines
F. PALONE - IT, M. FORTELEONI - IT, G. GEMELLI - IT, S. GENTILINI - IT, L. BUONO - IT, M. REBOLINI - IT

B2-307 Over Head Transmission Lines and High Voltage Substations Electromagnetic Field Analysis and Design Considerations for Minimizing External Impacts
A. KLAS - GR, A. DIAMANTIS - GR, T. DAMATOPOLOU - GR, C. DIKAJAKOS - GR, G. PAPAIOANNOU - GR

B2-308 The composite pylon
M.H. MIKKELSEN - DK

B2-309 Study on the spectrum characteristics, identification and control methods of corona noise generated by UHVDC transmission lines
Y. LIU - CN

B2-310 Full Scale Test for ±500kV HVDC Double Bi-Pole with Return Conductor Overhead Transmission Line

B2-311 Advanced conductor displacement modelling under wind conditions to improve right-of-way management

B2-312 Design of lattice towers and metallic grid foundations with undercut for helicopter works to reduce environmental impact
V. ROULET - FR
B3-101 Integrated Compact Substation – SECI: A Strategic Pattern for Expansion of the Electrical Distribution System in Brazil  
P. COSTA - BR

B3-102 Comparison of Medium Voltage Substation Bus Configurations  

B3-103 Levels of functionality for power distribution systems employing intelligent merging unit (IMU) and low-power instrument transformer (LPIT) technologies  
B. SOUSA - FI

B3-104 Station insulation performance under heavy icing conditions  
G. TESTIN - IT, P. CARDANO - IT, M. NOSILATI - IT, E. STELLA - IT, V. GIRLANDO - IT, M. SARAVOLAC - IT, A. PIGINI - IT, A. DARIANI - CA, S. YUAN - CA

B3-105 Partial Discharge Measurement by TEV and Ultrasonic Methods and their Limitations for Medium Voltage (MV) Switchgears - Experience of KAHRAMAA  
C. BHATNAGAR - QA

B3-106 Easier Short-Circuit and Switching Conditions in Bus-Node Substations  
G. KOEPPPL - CH, T. ASCHWANDEN - CH

B3-107 Application of a fluoronitrile gas in a 123 kV GIS pilot substation  
C. LINDNER - CH, D. GAUTSCHI - CH

B3-108 Improved grid resilience and optimized power availability by use of fast deployable transformer and substation concepts  
R. SZEWCZYK - PL, R. MAREK - US, J.-C. DUART - SZ

B3-109 The development of a 400kV mobile substation bay for flexible transmission services  

B3-110 Determination of the main parameters of UHV AC GIL  
G. SUN - CN

B3-111 Study on application of SF6/N2 mixture insulated GIB  
L. GAO - CN

B3-112 Development of an exclusive substation of renewable Energy – Hub Substation  

B3-113 Novel distribution substation design for congested smart metro cities  
PANKAJ SINGHAL - IN

B3-114 Upgrading of EHV sub-stations for Additional Bays and Power Handling  
RAJIL SRIVASTAVA - IN

B3-115 On-site experiences of 72.5 kV Clean-air GIS for Wind-turbine On- and Offshore application  

B3-116 The Digital Substation – Capitalize on Digitalization with Focus on this Central Element in Transmission Grids  
E. RAUBER - DE, U. WEIGT - DE

B3-117 New smart approach for a U/I-measuring system integrated in a GIS cast resin partition (NCIT) – Design, Manufacturing, Qualification and Operational Experience  

B3-118 Voltage uprating of existing Eskom high voltage substations when transient voltage stress and available withstand strength are coordinated  
P. SCHUTTE - ZA

B3-119 Prefabricated substations as a leverage for increased availability and agile expansion of high voltage grids  
F. MAUBAN - FR
SC B3 SUBSTATIONS AND ELECTRICAL INSTALLATIONS

PS2: Evolution in Substation Management

B3-201 Developing and Using Justifiable Asset Health Indices for Tactical and Strategic Risk Management

B3-202 New approach for aged SF6 insulated equipment with humidity problems, reducing costs and down-time

B3-203 Wireless sensor units for acoustic monitoring of switching devices
T. LAITINEN - FI

B3-204 Operations and Maintenance of Offshore Transmission Assets
C. JONES - GB, P. ROLLINGS - GB, M. LEE - GB, R. KASKANA - GB

B3-205 Modelling Substation Control and Protection Assets Condition for Optimal Reinvestment Decision Based on Risk, Cost and Performance
T. VU - AU

B3-206 Effective Substation Earthing System Assessment – The Quest for Clean Measurements
D. WOODHOUSE - AU

B3-207 Study on the effective inspection & replacement strategy for 145KV GIS

B3-208 Application of an Asset Health Management System for High-Voltage Substations

B3-209 Program Development for Condition evaluation, importance and risk assessment of power transformer in MEA electrical system
S. BUAKAEW - TH

B3-210 Streamlining the Decision-making Process on Tubular Rigid Busbar Selection During the Planning / Designing Stage by Utilizing 3D Substation BIM Design Software
A. FOSKULO - HR

B3-211 Smart grid substation equipment maintenance management functionality based on control centre SCADA data
I. IVANKOVIC - HR, D. PEHARDA - HR, D. NOVOSEL - US, K. ZUBRINIC-KOSTOVIC - HR, A. KEKELJ - HR

B3-212 New technologies for reducing energy consumption of 500-750 kV substation auxiliary systems
T. RYABIN - RU

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C3-303 Geomagnetically Induced Currents Modelling and Monitoring Transformer Neutral Currents in Austria
T. HALBEdL - AT, H. RENNER - AT, G. ACHLEITNER - AT

C3-304 CANCELLED - The use of LiDAR technology for vegetation management

C3-305 The citizens and local authorities views on actions taken to enhance public acceptance of a 380kV grid extension project
J. MENTENS - BE

C3-306 Ciclo VEGETA. Optimum management of vegetation treatment cycles at REE
J.M. ÁVILA - ES, L.F. ALVARADO - ES, E. NOGUEROLES - ES

SC C4 POWER SYSTEM TECHNICAL PERFORMANCE
PS1: System Technical Performance Issues Focusing on the Effects of High Level Integration of Power Electronics Based Technologies

C4-101 The Difficulties Faced in the Filters Design versus the Low Harmonic Voltages Generated by Wind Farms
M. CARLI - BR

C4-102 On Steady-State Voltage Standards with High-Penetration of Distributed Energy Resources
J. PEPPANEN - US, J.A. TAYLOR - US

C4-103 Zero-sequence currents in the high voltage grid in the Netherlands
S. NAUTA - NL

C4-104 Measurement and analysis of harmonic data to assess the impact of installations connected to high voltage systems
F. ERP, VAN - NL

C4-105 Investigation of processes during single-phase auto reclosing on transmission lines with controlled shunt reactors
G. AMICO - AR

C4-106 Updating reactive power compensation calculation required at Bader converter station in view of generation capabilities expected to be in service
G. ABD EL-RAHEEM - EG

C4-107 Improvement of Power System Harmonics Level Generated from the Electric Arc Furnaces EAF to the Acceptable Level by Using Shunt Passive Filters
E. F. SHAROUDA - EG, H.M. MAHMOUD - EG

C4-108 Harmonic Responsibilities Determination at the Point of Common Coupling

C4-109 Power Quality Monitoring as a Valuable Tool for Assessing System Technical Performance
C. STANESCU - RO

C4-110 Technical challenges associated with the integration of long HVAC cables and inverter based renewable generation in weak transmission networks: the Irish experience
M. VAL ESCUDERO - IE

C4-111 International Comparison of Harmonic Assessment Approaches and Implications

C4-112 Inverter Dominated UK Grid

C4-113 Investigation into the transmission system modelling for the effective assessment of voltage unbalance due to AC railway operation. Evaluation using on-site Measurement data
A. TAMATOPoulos - DK
C4-114 Power quality analysis and IEC standard evaluation using measurements and simulations in a STATCOM application
J. HASLER - SE

C4-115 Application of Fast Frequency Response (FFR) to improve Primary Frequency Control (PFC) in Tasmania
M. PIEKUTOWSKI - AU

C4-116 Cost effective EMC/EMI management for transmission and distribution substation control buildings
A. MAHARAJ - AU

C4-117 Minimum system strength for secure operation of large-scale power systems with high penetration of non-synchronous generation
B. BADRZADEH - AU

C4-118 Battery Storage for Enhancing the Performance of Transmission Grids
N. PAHALAWATHTHA - AU

C4-119 Risk Assessment and Reserve Requirements for Power Systems with High Wind Power Penetration
M. NEGNEVITSKY - AU

C4-120 Novel mechanism explanation and mitigation study of SSR in DFIG based on separate stator and rotor torque analysis
X. DONG - CN

C4-121 Determination of Wind Farm Performance
G. BUMROONGGIT - TH

C4-122 Power Quality Monitoring in Power Grids focusing on Accuracy of High Frequency Harmonics

C4-123 CANCELLED - Technical performance investigation of Thai power system

C4-124 Utilizing Advanced Resiliency Planning within the Electrical Sector
M. VAN HARTE - ZA

C4-125 The Application of Series Compensation to the existing Scottish 400 kV Transmission System

C4-126 Intermittent voltage unbalance and its impact on large power asynchronous motor operating modes
M. SILAEV - RU

C4-127 Assessment of the impact of power electronic devices on harmonic levels in transmission networks
I. PAPIC - SI, A. BOZICEK - SI, B. BLAZIC - SI

SC C4 POWER SYSTEM TECHNICAL PERFORMANCE

PS2: Developments and Advances in Modelling and Evaluation of Lightning Performance and Insulation Coordination

C4-201 Development of outdoor insulation pollution maps for IEC Power Grid
E. VOLPOV - IL

C4-202 Optimal Placement of Line Surge Arresters Based on Predictive Risk Framework Using Spatiotemporally Correlated Big Data
M. KEZUNOVIC - US, T. DOKIC - US, R. SAID - US

C4-203 Merits and Challenges of a Differentiating-Integrating Measurement Methodology with Air Capacitors for High-Frequency Transients
F. BARAKOU - NL

C4-204 Application of C-type Harmonic Filters as Remedial Measure Against Temporary Overvoltages in Transmission Systems due to Harmonic Resonances
K. VELITSIKAKIS - NL

C4-205 Voltage transient measurements using electric field sensors and ATP modelling of A 500 kV GIS station
R. BIANCHI - AR
C4-206  A simplified approach for use of a lightning attachment model to assess exposure of EHV and UHV lines to direct strikes  
F. RIZK - CA

C4-207  Shield wire or not – experiences from the Swedish 130 kV grid  
P. NORBERG - SE, T. INGMARSON - SE, J. STELIN - SE

C4-208  Field measurement of lightning transient voltage in substations using optical electric field sensors  
S. XIE - CN

C4-209  Analysis of Lightning Performance for 154/345 kV Transmission Lines with Externally Gapped Line Arrester(EGLA) in South Korea  

C4-210  A novel approach to statistical analysis of slow front overvoltages in HVDC converter stations  
A. BILOCK - SE

C4-211  Ferroresonance in Inductive Voltage Transformers or Power Voltage Transformers: analysis, laboratory tests and solutions  

C4-212  Evaluation of insulation coordination of substations by advanced approaches  
S. OKABE - JP

C4-213  Evolution of lightning protection of nuclear power plants: An overview of EDF’s experience  
P. DUQUERROY - FR

SC C4 POWER SYSTEM TECHNICAL PERFORMANCE

PS3: Computational Advances in Tools, Models, Methodology and Analysis of Power System Technical Performance related Issues

C4-301  Comparison between measured and simulated VFTO in 525 kV GIS  
P. MIGUEL - BR

C4-302  Full-Frequency Dependent Models for Variable Time-Step Simulations  
F. CAMARA - BR

C4-303  Hardware in the loop platform for testing the wind turbine type 4 ability of improving frequency stability of power systems  
J. RUEDA TORRES - NL

C4-304  Impact of uncertainties in OHL and UGC modelling on transmission system harmonic behaviour  
F. BARAKOU - NL

C4-305  requirements for models to study and precent system separation and collapse  
A. JANSSEN - NL

C4-306  Computation of power losses in HV submarine three-core armoured cables: a 3D multiconductor cell analysis along with subdivision technique  
R. BENATO - IT, S. DAMBONE SESSA - IT

C4-307  A Review of Dynamic Model Equivalents in Emerging Electrical Grids  
S. ALERYANI - CA

C4-308  Utilizing EMT for Benchmarking and Assessing Short Circuit Calculation Methods  
H. CATANASE - IE

C4-309  Impact of Cable Impedance Modelling Assumptions on Harmonic Losses in Offshore Wind Power Plants  
L. KOCEWIAK - DK

C4-310  Development of improved aggregated load models for power system network planning in the Nordic power system Part 2: Method verification  
E. HILLBERG - SE
C4-311  A High Frequency Power Transformers Model for Network Studies and TDSF Monitoring

C4-312  PMU placement in a 110-330 kV AC network for identification of the mathematical model of the Kaliningrad Region power system mode
J. SHAROV - RU

C4-313  Benchmarking standard power test systems for real-time simulation studies
S. ARUNPRASANTH - CA

C4-314  System Dynamic Studies of Power Electronics Devices with Real-Time Simulation - A TSO operational experience
H. SAAD - FR

SC C5 ELECTRICITY MARKETS AND REGULATION

PS1: The Need to Change Business and Regulatory Models Driven by Increase in Distributed Resources, Storage and Demand Response

C5-101  Regulatory model to accommodate distributed and renewable resources in a challenging economic situation: Brazilian experience
S. CUPERTINO - BR

C5-102  CANCELLED - Evolution of Regulatory and Business Models Given Reduction in Revenue, Decreasing Load Growth and Penetration of Renewable Energy, Energy Efficiency and Demand Side Management

C5-103  The estimation of the Value of Lost Load
D. PUGLIESE - IT, S. LIBRATTI - IT, M. MAURO - IT

C5-104  Imbalance Pricing in the context of the third and fourth energy packages – The new balancing market arrangements in Ireland and Northern Ireland
A. DOWNEY - IE

C5-105  Electricity Tariff Structure Review in Iran(Identifying and analyzing the most influenced factors)
M. MOHAMMADI - IR

C5-106  The impact of shorter intraday market gate closure on regulation reserves
N. PINHO DA SILVA - PT, R. PASTOR - PT, J. ESTEVES - PT, R. PESTANA - PT

C5-107  Indian Electricity Market –Data Analysis of a Decade of Experience
S.C. SAXENA - IN


C5-109  Exploring multi-services business cases for a storage unit in various grid schemes
A. ATAYI - FR

C5-110  Network tariff design in evolving electricity markets
L. MARTIN - FR

SC C5 ELECTRICITY MARKETS AND REGULATION

PS2: Impact of Climate Policy on Electricity Markets

C5-201  Electricity Network Codes: A success story?
M. SUPPONEN - FI

C5-202  Implications of the integration of renewable energies into the electricity market of Greece
U. BACHHIESL - AT, P. KAKAVAS - GR, G. FEICHTINGER - AT, R. GAUGL - AT

C5-203  Revenue Stacking for Battery Storage Projects from a Technical and Risk Perspective in the UK
M. SCOTT - GB, G. WATSON - GB, L. BLOOR - GB
C5-204 Analysis of the current Carbon Tax implementation in the Chilean Electric Market and future regulatory developments to allow effective CO2 reduction
F. LEIVA - CL

C5-205 Revision of the French capacity market
E. MERCKEL - FR

C5-206 Challenges and Measures to Integrate Renewable Energy Sources and Storage Means in the Brazilian Power System and Electricity Market
S. CISNEIROS - BR

C5-207 Mexican Energy Reforms: Mexico’s Path to a Clean Economy
M.A. AVILA ROSALES - MX

C5-208 The design and modelling of China's electricity market mechanism of renewable energy
L. MA - CN

C5-209 Solar Parks to Ramp up Solar Projects in India: The recent Downward trends in Tariff
RADHEY SHYAM MEENA - IN

C5-210 Evolutions of Japanese markets to realize stable and low cost power supply satisfying environmental targets
H. ASANO - JP

SC C5 ELECTRICITY MARKETS AND REGULATION

PS3: Localized Markets or Microgrids Interacting with Wholesale Markets

C5-301 The New Market Paradigm of the Brazilian Power System considering Thermal Base Generation for Supporting the Renewable Source Expansion
J. MELLO - BR

C5-302 The evolution of embedded networks and localised markets in Australia
A. CRUCKSHANK - AU

C5-303 Exploring the Market Value of Smart Grids and Interactions with Wholesale (TSO) and Distribution (DSO) markets
E. LAROSE ON BEHALF OF CIGRE WG C5.24 - US

C5-304 Economic assessment of smart grid flexibilities
A. BATTEGAY - FR

C5-305 Efficient Participation by Customers in an Electricity Market Using a Receding-Horizon Optimization

C5-306 TSO-DSO coordination and market architectures for an integrated ancillary services acquisition: the view of the SmartNet project

C5-307 Smart TSO-DSO interaction schemes and ICT solutions for the integration of ancillary services from distributed generation
L. ORTOLANO - IT, G. GUIDA - IT, G. BRUNO - IT, L. ORTOLANO - IT, M. POLI - IT, G. MIGLIAVACCA - IT, D. MONETA - IT, C. ABRIGONI - IT, F. ZANELLINI - IT, G. DELLA CROCE - IT, A. BRIDI - IT, M. BALDINI - IT, M. PALLESCHI - IT

C5-308 A comparative analysis of existing and prospective market organisations at the retail level: role modelling and regulatory choices

C5-309 Exploiting flexibility of radio base stations in local DSO markets for congestion management with shared balancing responsibility between TSO and DSO

C5-310 Key Guidelines to New Market Design to Ancillary Services in Latin American’s Power Systems with High Levels of Wind and Solar Energy: Practical Experiences from North America ISOs and European TSOs
J. AVALOS - CL
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**SC C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES**

**PS2: Energy Storage in Distribution Systems**

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C6-207 Opportunities for interoperability between different energy networks for remote or island networks

C6-208 Research on coordinating planning between electric distribution network and regional electric thermal storage boilers based on peak load shifting of heat and electricity consumption
D. JIA - CN

C6-209 Application of ESS for Wind Power Connection to Youngheung Wind Farm

C6-210 Remote PV Control and Combination with Load Control: System Construction and Demonstration
H. ISHII - JP

C6-211 Experimental studies of energy storage system for multi-level integration of generating stations and consumers
K. DENSBIKOV - RU

SC C6 ACTIVE DISTRIBUTION SYSTEMS AND DISTRIBUTED ENERGY RESOURCES

PS3: Intelligent Electrification for All

C6-301 Design and Implementation of a Grid-connected Microgrid in Medium Voltage Brazilian Distribution Network – Architecture, Control and Regulatory Challenges
L. LEITE - BR

C6-302 CANCELLED - Experiences in Microgrids and Islanded Networks with High Degrees of Renewable Penetration in the Scottish Highlands and Islands

C6-303 CANCELLED - In-house Development of Micro Energy Management System for Grid-Connected Microgrids

C6-304 Full-scope simulation of grid-connected microgrids
A. DR KOVACS - HU

C6-305 Medium Voltage connected µgrid in dispersed rural areas: mGridStorage project

C6-306 New tool for arbitrage between network expansion and isolated mini-grids in the context of rural electrification.
S. LEYDER - BE, G. ROIG - BE

C6-307 An Integrated Pan-European Research Infrastructure for Validating Smart Grid Systems

C6-308 Integrating renewable energy sources in the Tuscan Archipelago
F. PALONE - IT, L. BUONO - IT, P. PORTOGHESE - IT, M. REBOLINI - IT, A. NECCI - IT, L. APICELLA - IT

C6-309 An automated grid impact study tool for integrating a high penetration of intermittent resources on diesel-based isolated systems
J.A. ZRUM - CA

C6-310 Innovative solutions and engineering studies within the Renewable Energy Integration Development Singapore

C6-311 Achieving High Renewable Energy Penetration in Off-grid Systems via Low Load Diesel Integration: A Case Study of King Island, Australia
M. NEGNEVSKY - AU

C6-312 Learning from a 3.275 MW Utility Scale PV Plant Project: Update and New Remarks
T. SAHA - AU

C6-313 Development of an R&D Platform for Smart City Projects in the Indian Context
S. CHAKRABARTI - IN
C6-314 LV Network Operation through data analytics

C6-315 Study on the Feasibility of MVDC
Z. MA ON BEHALF OF WG C6.31 - GB

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PS1: HVDC Insulation Systems

D1-101 Experiences in Dielectric Testing of Gas-insulated HVDC Systems

D1-102 Measurement of surface potential at the gas-solid interface for validating electric field simulations in gas-insulated DC systems

D1-103 Insulation Characteristics in DC-GIS: Surface charge phenomena on epoxy spacers and metallic particle motions
T. YASUOKA - JP

D1-104 Space charge measurements for HVDC GIS spacer using the Thermal Step Method
P.S. MOBOLO NOAH - FR

D1-105 HFO1234zeE in medium voltage switchgear as safe alternative to SF6
C. PREVE - FR

D1-106 Experimental Investigations of Oil-Insulated Arrangements at High DC Voltage and Composite Voltage Stress considering a Charge Carrier-based Approach

D1-107 Comparative analysis of some present-day used dielectric liquids based on correlated PD phenomena and DGA investigation

SC D1 MATERIALS AND EMERGING TEST TECHNIQUES

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D1-201 Application of fluoronitrile/CO2/O2 mixtures in high voltage products to lower the environmental footprint

D1-202 Environmental aspects of high voltage gas insulated switchgear that uses alternatives to SF6 and monitoring and long-term performance of a pilot installation
P. STOLLER - CH, J. HENGSTLER - CH, C. DOIRON - CH, S. SCHEEL - CH, P. SIMKA - CH, P. MÜLLER - CH

D1-203 CANCELLED - Development of Simulation Tool for SF6 Alternative Gas Circuit Breaker Design

D1-204 A comparative study of AC and DC breakdown characteristics with dielectric spectroscopy of Hexagonal Boron Nitride and Carbon Nanosphere Epoxy Nanodielectrics
A HANK - ZA

D1-205 Explanation of Breakdown Phenomena in Nanofluids depending on Nanoparticles types
A. M. ELSAEED - EG

D1-206 Adhesives for Bonding Transformerboard: Partial Discharge and Ageing Behaviour

D1-207 Creepage Discharge Investigations with Biodegradable Ester-based Liquids and the Implications for Transmission Transformer Design
M. LASHBROOK - GB, A. GYROE - GB, R. MARTIN - GB, R. CSELKO - HU, B. NEMETH - HU

D1-208 A Rigorous Ageing Program for Ester/Cellulose Liquid Immersed Transformer Insulation Systems
R.P. MAREK - US, H.M. WILHELM - BR
D1-209 25 years’ experience of on-line Terna monitoring system (SMOAT) applied to HV equipment and transformers
F. SCATIGGIO - IT, F.M. PEPE - IT, S. SACCO - IT

D1-210 Influence of the Material Composition on the Dynamic Hydrophobicity of
C. BAER - CH, FRANK SCHMUCK - CH, S. KORNHUBER - DE, R. BAERSCH - DE, V. BRADE - DE

SC D1 MATERIALS AND EMERGING TEST TECHNIQUES
PS3: Testing, Monitoring and Diagnostics

D1-301 CANCELLED - Breakdown voltage of low-GWP insulation gas in semi-inhomogeneous fields

D1-302 Impulse test and partial discharge detection for GIS equipment in field
J. LI - CN

D1-303 Development of a wireless PD measurement system enabling to Contact directly with 22.9kV Live line of Gas Switchgear

D1-304 Return of experience: The CIGRE UHF PD sensitivity verification and on-site detection of critical defects

D1-305 Return on experience on the uses of GIS PD monitoring systems
G. FAUCONNET - FR

D1-306 Evaluation of three different thermally upgraded papers used in liquid-immersed transformer as reference insulation systems to determine thermal class
H. WILHELM - BR

D1-307 DGA assessment improvement by the criteria of maximum permissible gas concentrations and their rate of growth
V. PELYMSKIY - RU

D1-308 Evaluation of the paper insulation condition of power transformers based on the content of methanol dissolved in transformer oil
L. DARIAN - RU

D1-309 Experience and Added Value from Capacitive Online Moisture Sensors

D1-310 Parametric Frequency Response Interpretation using Frequency Localising Basis Functions
J. WELSH - AU

D1-311 Indirectly assessing the ageing of shell-type windings using paper samples from its leads. Post-mortem analyses.
A. PEIXOTO - PT, R. M. MARTINS - PT, S. COUTO - PT, P. LIMA - PT, H. M. CAMPELO - PT

D1-312 Condition Assessment of On Load Tap Changers by Using Dynamic Resistance Measurement
S. PROMSRTONG - TH

D1-313 Terna Transformer Fleet Knowledge Management through the use of on-line monitors
F. SCATIGGIO - IT, C.A. SERAFINO - IT, M. TOZZI - IE, E. SAVORELLI - IE, A. SALSI - IE

D1-314 The Asset Health Center, Implementation of Online Monitoring and the Grid of the Future

D1-315 A novel method to study the interface resistivity between silicone rubber housing and FRP rod of composite insulator
X. LIANG - CN

D1-316 Measurements of hydrophobicity transfer of silicone sheds in service aged non-ceramic outdoor insulators from polluted areas

D1-317 Overhead line insulation state checking by on-line monitoring system
L. PAVLOV - SK
D1-318 GCCIA pollution test station Part II: Field Assessment & Test Station Results
A. AL-THAQAFI - SA

D1-319 Advanced techniques in impulse testing method of electric power equipment
S. OKABE - JP

D1-320 Steep-front impulse voltage tests on high-voltage equipment
Y. LI - AU

D1-321 The performance of calculable impulse calibrator up to 600 V
A. MEREV - TR

D1-322 Using Brillouin distributed sensing to reduce installation risk and optimize cable operation of subsea power cable
E. ROCHAT - CH, S. CHIN - CH, R. RAVET - CH

D1-323 Reference PD generator for sensitivity checking of measuring instrumentation to be used for continuous on-line PD monitoring

D1-324 Using Optical Spectroscopy For Quality Control Of Mineral Transformer Oils
V. KOZLOV - RU

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PS1: Opportunities and Challenges in ICT applied to Microgrid and DER

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N, HATZIARGYRIOU - GR, I. VLACHOS - GR, G. KIOKES - GR

D2-102 Study on the construction of global energy research system based on economic-energy-electricity-environment integration analysis
W. KONG - CN

D2-103 Analysis and visualization of residential electricity consumption based on geographic regularized matrix factorization in smart grid
Y. WANG - CN

D2-104 Implementation of Interoperability Adaptor for Interface with External Systems in Campus Microgrid

D2-105 CANCELLED - Simulation of Data Traffic and Congestion Analysis on Power Line Communication for Last Mile Network in PEA Smart Grid

D2-106 Assuring operational communications across the sub-transmission and MV distribution electrical power grids
M. MESBAH - FR

SC D2 INFORMATION SYSTEMS AND TELECOMMUNICATION

PS2: Potential Applications and Implementation of Network and Infrastructure Virtualization

D2-201 Substation Virtualisation: An Architecture for Information Technology and Operational Technology Convergence for Resilience, Security and Efficiency
V. TAN - AU

D2-202 Benefit and resolution of operational issues for information and communication systems using virtualization techniques in the electric power
H. DOI - JP

SC D2 INFORMATION SYSTEMS AND TELECOMMUNICATION

PS3: Maintaining Reliable and Secure Operation in an Evolving Environment

D2-301 Building a Secure Network Policies, Architetaura and Incident Response Case: Chesf
R. LEAL - BR
D2-302 A Hybrid Communications Network Approach for Advanced Applications on the Modern Grid
J.P. KNAUSS - US

D2-303 Network evolution towards packet switched technologies
A. VIRO - FI

D2-304 IED system management solution: a universal approach for all your grid IoT integration
A. HAMDON - CA

D2-305 Teleprotection over Multiprotocol Label Switching (MPLS): Experiences from an Australian Electric Power Utility
V. TAN - AU, J. COLE - AU

D2-306 Research and application of deep security protection technology in power industrial control system
W. LIN - CN

D2-307 Challenges in EGAT Telecommunication System Integration
P. CHIEWCHARAT - TH

D2-308 An Indian Case Study of Hierarchically Integrated SCADA system upgrade and its impact on Connected Control centers
K.V.S BABA - IN

D2-309 Network and Data Cybersecurity Strategy of the Electrical Power System
M. TALJAARD - ZA

D2-310 Telecommunication solutions for IEC 61850-based substations at the Spanish TSO and its practical implementation

D2-311 MAIGE – IoT infrastructure for online asset management

D2-312 Development of information-analytical system for automatic fault analysis and relay protection performance evaluation
D. ZHUKOV - RU

D2-313 Approach to maintaining secure operation of various systems in Japanese electric companies
T. HIKINO - JP

D2-314 GOOSE performance monitoring based on IEC 61850 enabled switch
J. CHUANG - TW, M. JENKNER - DE

D2-315 Data Analytics Platform for Power Equipment Intelligent Lifecycle Management
A. KHALYSMAA - RU

D2-316 Asset Management with ICT Support in Indian Power System
N. NARENDRA SINGH SODHA - IN